



102.174

SEQUENCE LISTING

<110> Le Gal, Frederique Anne  
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Melnyk, Oleg  
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<120> LIPOPEPTIDES INDUCING T LYMPHOCYTIC CYTOTOXICITY  
BEARING AT LEAST ONE AUXILIARY T EPITOPE, AND USES FOR  
VACCINATION

<130> 102.174

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<141> 2001-04-04

<150> PCT/FR99/00792

<151> 1999-04-06

<160> 276

<170> PatentIn Ver. 2.1

<210> 1

<211> 14

<212> PRT

<213> Clostridium tetanus

<220>

<223> amino acids 830-843 of the tetanus toxin

<400> 1

Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu

1

5

10

<210> 2

<211> 14

<212> PRT

<213> Human Papillomavirus (HPV)

<220>

<223> amino acids 43-57 of HPV E7 protein

<400> 2

Gly Gln Ala Glu Pro Asp Arg Ala His Asn Ile Val Thr Phe

1

5

10

<210> 3

<211> 28

<212> PRT

<213> Homo sapiens

<220>

<221> LIPID

<222> (1)

<223> dipalmitoyl-lysyl chain on N-terminal residue

<400> 3

Ser Ser Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu  
 1 5 10 15

Ala Ala Ala Ala Ala Gly Ile Gly Ile Leu Thr Val  
 20 25

<210> 4

<211> 28

<212> PRT

<213> Homo sapiens

<220>

<221> LIPID

<222> (1)

<223> dipalmitoyl-lysyl chain on N-terminal residue

<400> 4

Ser Ser Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu  
 1 5 10 15

Arg Gly Arg Ala Ala Gly Ile Gly Ile Leu Thr Val  
 20 25

<210> 5

<211> 28

<212> PRT

<213> Homo sapiens

<220>

<221> LIPID

<222> (1)

<223> dipalmitoyl-lysyl chain on N-terminal residue

<400> 5

Gly Arg Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu  
 1 5 10 15

Arg Gly Arg Ala Ala Gly Ile Gly Ile Leu Thr Val  
 20 25

<210> 6

<211> 28

<212> PRT

<213> Homo sapiens

<220>

<221> LIPID

<222> (1)

<223> monopalmitoyl-lysyl chain on N-terminal residue

&lt;400&gt; 6

Ser Ser Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu  
 1 5 10 15

Arg Gly Arg Ala Ala Gly Ile Gly Ile Leu Thr Val  
 20 25

&lt;210&gt; 7

&lt;211&gt; 28

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; LIPID

&lt;222&gt; (1)

&lt;223&gt; monopalmitoyl-lysyl chain on N-terminal residue

&lt;400&gt; 7

Gly Arg Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu  
 1 5 10 15

Arg Gly Arg Ala Ala Gly Ile Gly Ile Leu Thr Val  
 20 25

&lt;210&gt; 8

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

<223> A hydrazine is bound between the N-terminal lysine  
 and isoleucine at position 2

&lt;400&gt; 8

Lys Ile Leu Lys Glu Pro Val His Gly Val  
 1 5 10

&lt;210&gt; 9

&lt;211&gt; 15

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; aldehyde group bound to N- terminal residue

&lt;220&gt;

&lt;221&gt; LIPID

&lt;222&gt; (15)

&lt;223&gt; palmitoyl chain on C-terminal lysine residue

&lt;400&gt; 9

Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Lys  
 1 5 10 15

<210> 10  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 10  
Glu Asp Ala Glu Leu Asn Pro Arg Phe  
1 5

<210> 11  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 11  
Ser Glu Leu Asp Leu Glu Lys Gly Leu  
1 5

<210> 12  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 12  
Asp Glu Leu Glu Ala Val Pro Asn Ile  
1 5

<210> 13  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 13  
Lys Glu Asp Ala Leu Gln Arg Pro Val  
1 5

<210> 14  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 14  
Glu Asp Ala Leu Gln Arg Pro Val Ala  
1 5

<210> 15  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 15  
Gly Glu Lys Leu Arg Val Leu Gly Tyr  
1 5

<210> 16  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 16  
Glu Asp Thr Met Glu Val Glu Glu Phe  
1 5

<210> 17  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 17  
Met Glu Tyr Leu Glu Lys Lys Asn Phe  
1 5

<210> 18  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 18  
Asn Glu Glu Ala Ala Asp Glu Val Phe  
1 5

<210> 19  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 19  
Val Asn Gln Glu Arg Phe Arg Met Ile  
1 5

<210> 20  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 20  
Leu Phe Gln Lys Leu Ala Ser Gln Leu  
1 5

<210> 21  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 21  
Ala Arg Lys Leu Arg His Val Phe Leu  
1 5

<210> 22

<211> 9  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic  
 myeloid leukemia translocation)

<400> 22  
 Ala Leu Lys Ile Lys Ile Ser Gln Ile  
 1 5

<210> 23  
 <211> 8  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic  
 myeloid leukemia translocation)

<400> 23  
 Cys Val Lys Leu Gln Thr Val His  
 1 5

<210> 24  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic  
 myeloid leukemia translocation)

<400> 24  
 Lys Ala Leu Gln Arg Pro Val Ala Ser  
 1 5

<210> 25  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic  
 myeloid leukemia translocation)

<400> 25  
 Gly Ala Lys Thr Lys Ala Thr Ser Leu  
 1 5

<210> 26  
 <211> 9

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic myeloid leukemia translocation)

<400> 26

Ile Gln Gln Met Arg Asn Lys Phe Ala

1

5

<210> 27

<211> 8

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic myeloid leukemia translocation)

<400> 27

Gln Met Arg Asn Lys Phe Ala Phe

1

5

<210> 28

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic myeloid leukemia translocation)

<400> 28

Asn Pro Arg Phe Leu Lys Asp Asn Leu

1

5

<210> 29

<211> 10

<212> PRT

<213> Homo sapiens

<220>

<400> 29

Thr Pro Asp Cys Ser Ser Asn Glu Asn Leu

1

5

10

<210> 30

<211> 9

<212> PRT

<213> Homo sapiens



<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 30  
Thr Pro Arg Arg Gln Ser Met Thr Val  
1 5

<210> 31  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 31  
Ser Pro Gly Gln Arg Ser Ile Ser Leu  
1 5

<210> 32  
<211> 10  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 32  
His Pro Asn Leu Val Gln Leu Leu Gly Val  
1 5 10

<210> 33  
<211> 10  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 33  
Ser Pro Lys Pro Ser Asn Gly Ala Gly Val  
1 5 10

<210> 34  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 34

Lys Pro Leu Arg Arg Gln Val Thr Val  
1 5

<210> 35

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 35

Ser Pro Ala Pro Val Pro Ser Thr Leu  
1 5

<210> 36

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 36

Glu Arg Cys Lys Ala Ser Ile Arg Arg  
1 5

<210> 37

<211> 10

<212> PRT

<213> Homo sapiens

<220>

<400> 37

Asp Arg Gln Arg Trp Gly Phe Phe Arg Arg  
1 5 10

<210> 38

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

&lt;400&gt; 38

Gln Arg Val Gly Asp Leu Phe Gln Lys

1

5

&lt;210&gt; 39

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

&lt;400&gt; 39

Phe Arg Val His Ser Arg Asn Gly Lys

1

5

&lt;210&gt; 40

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

&lt;400&gt; 40

Leu Leu Tyr Lys Pro Val Asp Arg Val

1

5

&lt;210&gt; 41

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

&lt;400&gt; 41

Phe Leu Ser Ser Ile Asn Glu Glu Ile

1

5

&lt;210&gt; 42

&lt;211&gt; 9

&lt;212&gt; PPT

&lt;213&gt; Homo sapiens

&lt;220&gt;

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

&lt;400&gt; 42

Gln Leu Leu Lys Asp Ser Phe Met Val  
 1 5

<210> 43  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic  
 myeloid leukemia translocation)

<400> 43  
 Phe Met Val Glu Leu Val Glu Gly Ala  
 1 5

<210> 44  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic  
 myeloid leukemia translocation)

<400> 44  
 Lys Leu Ser Glu Gln Glu Ser Leu Leu  
 1 5

<210> 45  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic  
 myeloid leukemia translocation)

<400> 45  
 Met Leu Thr Asn Ser Cys Val Lys Leu  
 1 5

<210> 46  
 <211> 10  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic  
 myeloid leukemia translocation)

<400> 46  
 Gly Leu Tyr Gly Phe Leu Asn Val Ile Val

1

5

10

&lt;210&gt; 47

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;220&gt;

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

&lt;400&gt; 47

Phe Leu Asn Val Ile Val His Ser Ala

1

5

&lt;210&gt; 48

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

&lt;400&gt; 48

Val Leu Leu Tyr Met Ala Thr Gln Ile

1

5

&lt;210&gt; 49

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

&lt;400&gt; 49

Phe Ile Pro Leu Ile Ser Thr Arg Val

1

5

&lt;210&gt; 50

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

&lt;400&gt; 50

Val Val Leu Asp Ser Thr Glu Ala Leu  
 1 5

<210> 51  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<220>

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic  
 myeloid leukemia translocation)

<400> 51  
 Asn Gln Glu Arg Phe Arg Met Ile Tyr  
 1 5

<210> 52  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic  
 myeloid leukemia translocation)

<400> 52  
 Val Gly Asp Ala Ser Arg Pro Pro Tyr  
 1 5

<210> 53  
 <211> 10  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic  
 myeloid leukemia translocation)

<400> 53  
 Lys Val Pro Glu Leu Tyr Glu Ile His Lys  
 1 5 10

<210> 54  
 <211> 9  
 <212> PRT  
 <213> Homo sapiens

<220>

<220>  
 <223> epitope from BCR-ABL fusion protein (chronic

myeloid leukemia translocation)

<400> 54

Lys Leu Ala Ser Gln Leu Gly Val Tyr

1

5

<210> 55

<211> 10

<212> PRT

<213> Homo sapiens

<220>

<220>

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 55

Met Val Glu Leu Val Glu Gly Ala Arg Lys

1

5

10

<210> 56

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 56

Ile Val His Ser Ala Thr Gly Phe Lys

1

5

<210> 57

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 57

Ala Thr Gly Phe Lys Gln Ser Ser Lys

1

5

<210> 58

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<220>

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 58

Lys Gln Ser Ser Lys Ala Leu Gln Arg  
1 5

<210> 59

<211> 10

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 59

Glu Val Tyr Glu Gly Val Trp Lys Lys Tyr  
1 5 10

<210> 60

<211> 10

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 60

Ser Leu Ala Tyr Asn Lys Phe Ser Ile Lys  
1 5 10

<210> 61

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<220>

<223> epitope from BCR-ABL fusion protein (chronic  
myeloid leukemia translocation)

<400> 61

Asn Leu Phe Ser Ala Leu Ile Lys Lys  
1 5

<210> 62

<211> 11

<212> PRT



<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic myeloid leukemia translocation)

<400> 62

Thr Val Ala Pro Ala Ser Gly Leu Pro His Lys  
1 5 10

<210> 63

<211> 10

<212> PPT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic myeloid leukemia translocation)

<400> 63

Leu Ile Ser Thr Arg Val Ser Leu Arg Lys  
1 5 10

<210> 64

<211> 9

<212> PPT

<213> Homo sapiens

<220>

<223> epitope from BCR-ABL fusion protein (chronic myeloid leukemia translocation)

<400> 64

Arg Ile Ala Ser Gly Ala Ile Thr Lys  
1 5

<210> 65

<211> 11

<212> PPT

<213> Homo sapiens

<220>

<223> epitope from p53 protein

<400> 65

Arg Val Glu Gly Asn Leu Ala Arg Val Glu Tyr  
1 5 10

<210> 66

<211> 9

<212> PPT

<213> Homo sapiens

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 66

Gly Ser Asp Cys Thr Thr Ile His Tyr

1

5

&lt;210&gt; 67

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 67

Leu Leu Pro Glu Asn Asn Val Leu Ser Pro Leu

1

5

10

&lt;210&gt; 68

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 68

Arg Met Pro Glu Ala Ala Pro Pro Val

1

5

&lt;210&gt; 69

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 69

Arg Met Pro Glu Ala Ala Pro Arg Val

1

5

&lt;210&gt; 70

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 70

Ala Leu Asn Lys Met Phe Cys Gln Leu

1

5

&lt;210&gt; 71

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 71

Ser Thr Pro Pro Pro Gly Thr Arg Val

1

5

&lt;210&gt; 72

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 72

Gly Leu Ala Pro Pro Gln His Leu Ile Arg Val

1

5

10

&lt;210&gt; 73

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 73

Leu Leu Gly Arg Asn Ser Phe Glu Val

1

5

&lt;210&gt; 74

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 74

Pro Leu Asp Gly Glu Tyr Phe Thr Leu

1

5

<210> 75  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from p53 protein

<400> 75  
Arg Val Arg Ala Met Ala Ile Tyr Lys  
1 5

<210> 76  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from p53 protein

<400> 76  
Arg Arg Thr Glu Glu Glu Asn Leu Arg  
1 5

<210> 77  
<211> 9  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from p53 protein

<400> 77  
Glu Leu Pro Pro Gly Ser Thr Lys Arg  
1 5

<210> 78  
<211> 10  
<212> PRT  
<213> Homo sapiens

<220>  
<223> epitope from p53 protein

<400> 78  
Leu Pro Glu Asn Asn Val Leu Ser Pro Leu  
1 5 10

<210> 79  
<211> 11  
<212> PRT  
<213> Homo sapiens

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 79

Ala	Pro	Arg	Met	Pro	Glu	Ala	Ala	Pro	Pro	Val
1				5					10	

&lt;210&gt; 80

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 80

Ala	Pro	Arg	Met	Pro	Glu	Ala	Ala	Pro	Arg	Val
1				5					10	

&lt;210&gt; 81

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 81

Ala	Pro	Pro	Gln	His	Leu	Ile	Arg	Val
1				5				

&lt;210&gt; 82

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; epitope from p53 protein

&lt;400&gt; 82

Arg	Pro	Ile	Leu	Thr	Ile	Ile	Thr	Leu
1				5				

&lt;210&gt; 83

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;220&gt;

<223> epitope from p53 protein

<400> 83

Lys Pro Leu Asp Gly Glu Tyr Phe Thr Leu  
 1 5 10

<210> 84

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from p53 protein

<400> 84

Cys Gln Leu Ala Lys Thr Cys Pro Val  
 1 5

<210> 85

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from p53 protein

<400> 85

Gly Leu Ala Pro Pro Gln His Leu Ile  
 1 5

<210> 86

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from p53 protein

<400> 86

Asn Thr Phe Arg His Ser Val Val Val  
 1 5

<210> 87

<211> 11

<212> PRT

<213> Homo sapiens

<220>

<223> epitope from p53 protein

<400> 87

Leu Leu Pro Glu Asn Asn Val Leu Ser Pro Leu  
 1 5 10

<210> 88  
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<220>  
 <223> epitope from p53 protein

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 Arg Met Pro Glu Ala Ala Pro Pro Val  
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<210> 89  
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<220>  
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<400> 89  
 Leu Ile Arg Val Glu Gly Asn Leu Arg Val  
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 <212> PRT  
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 <223> HPV epitope

<400> 90  
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<220>  
 <223> HPV epitope

<400> 91  
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<210> 92  
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<220>

<223> HPV epitope

<400> 92

Thr Leu Gly Ile Val Cys Pro Ile

1 5

<210> 93

<211> 10

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<220>

<223> HPV epitope

<400> 93

Thr Ile His Asp Ile Ile Leu Glu Cys Val

1 5 10

<210> 94

<211> 9

<212> PRT

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<220>

<223> HPV epitope

<400> 94

Lys Leu Pro Gln Leu Cys Thr Glu Leu

1 5

<210> 95

<211> 8

<212> PRT

<213> Human Papillomavirus (HPV)

<220>

<223> HPV epitope

<400> 95

Arg Pro Pro Lys Leu Pro Gln Leu

1 5

<210> 96

<211> 23

<212> PRT

<213> Human Papillomavirus (HPV)

<220>

<223> HPV epitope



&lt;400&gt; 96

Leu Arg Arg Glu Val Tyr Asp Phe Ala Phe Arg Asp Leu Cys Ile Val  
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Tyr Arg Asp Gly Asn Pro Tyr  
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&lt;210&gt; 97

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human Papillomavirus (HPV)

&lt;220&gt;

&lt;223&gt; HPV epitope

&lt;400&gt; 97

Ile Ser Glu Tyr Arg His Tyr Cys Tyr  
 1 5

&lt;210&gt; 98

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Human Papillomavirus (HPV)

&lt;220&gt;

&lt;223&gt; HPV epitope

&lt;400&gt; 98

Glu Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile Arg  
 1 5 10 15

Gly Arg Trp Thr  
 20

&lt;210&gt; 99

&lt;211&gt; 15

&lt;212&gt; PRT

&lt;213&gt; Human Papillomavirus (HPV)

&lt;220&gt;

&lt;223&gt; HPV epitope

&lt;400&gt; 99

Gly Gln Ala Glu Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe  
 1 5 10 15

&lt;210&gt; 100

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human Papillomavirus (HPV)

&lt;220&gt;

&lt;223&gt; HPV epitope

&lt;400&gt; 100

Gln Ala Glu Pro Asp Arg Ala His Tyr

1 5

&lt;210&gt; 101

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human Papillomavirus (HPV)

&lt;220&gt;

&lt;223&gt; HPV epitope

&lt;400&gt; 101

Glu Pro Asp Arg Ala His Tyr Asn Ile Val

1 5 10

&lt;210&gt; 102

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 epitope

&lt;400&gt; 102

Gly Leu Glu Gly Leu Ile His Ser Gln Arg Arg

1 5 10

&lt;210&gt; 103

&lt;211&gt; 8

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 epitope

&lt;400&gt; 103

Phe Pro Asp Trp Gln Asn Tyr Thr

1 5

&lt;210&gt; 104

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 104

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1 5

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<220>  
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<400> 106  
Ala Arg Glu Leu His Pro Glu Tyr  
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<210> 107  
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<220>  
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Ser Leu Tyr Asn Thr Val Ala Thr Leu  
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&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 109

Ala Leu Val Glu Ile Cys Thr Glu Met

1

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&lt;210&gt; 110

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 110

Val Leu Asp Val Gly Asp Ala Tyr Phe Ser Val

1

5

10

&lt;210&gt; 111

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 111

Lys Ile Tyr Gln Tyr Met Asp Asp Leu

1

5

&lt;210&gt; 112

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 112

Lys Ile Glu Glu Leu Arg Gln His Leu

1

5

&lt;210&gt; 113

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 113

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<400> 122

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1 5

<210> 123

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<400> 123

Pro Leu Val Lys Leu Trp Tyr Gln Leu  
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<210> 124

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<400> 124

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<400> 125

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<210> 126

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<400> 126

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1 5

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<210> 131  
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<400> 131

His Ala Gly Pro Ile Ala Pro Gly Gln Met  
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<210> 132

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<400> 132

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<210> 133

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<400> 133

Phe Leu Gln Ser Arg Pro Glu Thr Ala  
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<210> 134

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<400> 134

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<210> 135

<211> 9

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&lt;400&gt; 135

Lys Ile Arg Leu Arg Pro Gly Gly Lys  
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&lt;210&gt; 136

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 136

Arg Leu Arg Pro Gly Gly Lys Lys Lys  
1 5

&lt;210&gt; 137

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 137

Ala Leu Val Glu Ile Cys Thr Glu Met Glu Lys  
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&lt;210&gt; 138

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 138

Ala Ile Phe Gln Ser Ser Met Thr Lys  
1 5

&lt;210&gt; 139

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 139

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<400> 143  
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       1                  5

<210> 144  
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&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 144

Ala Ile Phe Gln Ser Ser Met Thr Lys  
 1 5

&lt;210&gt; 145

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 145

Gln Ile Tyr Gln Glu Pro Phe Lys Asn Leu Lys  
 1 5 10

&lt;210&gt; 146

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 146

Gln Val Pro Leu Arg Pro Met Thr Tyr Lys  
 1 5 10

&lt;210&gt; 147

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 147

Ala Val Asp Leu Ser His Phe Leu Lys  
 1 5

&lt;210&gt; 148

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 148

Ala Cys Gln Val Gly Gly Pro Gly His Lys

1

5

10

&lt;210&gt; 149

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 149

Ala Thr Leu Tyr Cys Val His Gln Arg

1

5

&lt;210&gt; 150

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 150

Leu Phe Cys Ala Ser Asp Ala Lys Ala Tyr

1

5

10

&lt;210&gt; 151

&lt;211&gt; 8

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 151

Tyr Leu Lys Asp Gln Gln Leu Leu

1

5

&lt;210&gt; 152

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 152

Arg Tyr Leu Lys Asp Gln Gln Leu Leu

1

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<220>  
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<400> 156  
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&lt;400&gt; 157

Glu Val Ile Pro Met Phe Ser Ala Leu

1

5

&lt;210&gt; 158

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 158

Arg Ala Ile Arg His Ile Pro Arg Arg

1

5

&lt;210&gt; 159

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 159

Arg Leu Arg Asp Leu Leu Leu Ile Val Thr Arg

1

5

10

&lt;210&gt; 160

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 160

Arg Ile Lys Gln Ile Ile Asn Met Trp

1

5

&lt;210&gt; 161

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 161

His Arg Leu Arg Asp Leu Leu Leu Ile

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<400> 163  
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&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 166

Thr Pro Gly Pro Gly Val Arg Tyr Pro Leu  
 1 5 10

&lt;210&gt; 167

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 167

Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile  
 1 5 10

&lt;210&gt; 168

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 168

Ile Pro Arg Arg Ile Arg Gln Gly Leu  
 1 5

&lt;210&gt; 169

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 169

Tyr Leu Ala Trp Val Pro Ala His Lys  
 1 5

&lt;210&gt; 170

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

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<210> 175

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Asp Leu Asn Thr Met Leu Asn Thr Val  
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&lt;210&gt; 193

&lt;211&gt; 9

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&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 193

Asp Pro Asn Pro Gln Glu Val Val Leu  
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&lt;210&gt; 194

&lt;211&gt; 9

&lt;212&gt; PRT

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&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 194

Arg Pro Val Val Ser Thr Gln Leu Leu  
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&lt;210&gt; 195

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 195

Val Pro Leu Asp Lys Asp Phe Arg Lys Tyr  
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&lt;210&gt; 196

&lt;211&gt; 9

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&lt;400&gt; 201

Val Pro Leu Arg Pro Met Thr Tyr

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&lt;212&gt; PRT

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&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 202

Thr Ala Val Pro Trp Asn Ala Ser Trp

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&lt;210&gt; 203

&lt;211&gt; 11

&lt;212&gt; PRT

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&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 203

Val Pro Val Trp Lys Glu Ala Thr Thr Thr Leu

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&lt;211&gt; 9

&lt;212&gt; PRT

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&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 204

Asn Ser Ser Gln Val Ser Gln Asn Tyr

1

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&lt;210&gt; 205

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

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Pro Pro Ile Pro Val Gly Glu Ile Tyr

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&lt;400&gt; 223

Leu Val Gly Lys Leu Asn Trp Ala Ser Gln Ile Tyr

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&lt;210&gt; 224

&lt;211&gt; 8

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 224

Ala Val Asp Leu Ser His Phe Leu

1

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&lt;210&gt; 225

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 225

Thr Gln Gly Tyr Phe Pro Asp Trp Gln Asn Tyr

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&lt;210&gt; 226

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 EPITOPE

&lt;400&gt; 226

Ser Phe Asn Cys Gly Gly Glu Phe Phe

1

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&lt;210&gt; 227

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

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&lt;400&gt; 227

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<400> 242  
 Val Leu Tyr Arg Tyr Gly Ser Phe Ser Val  
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Glu Ala Ala Gly Ile Gly Ile Leu Thr Val  
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<400> 246

Ile Leu Thr Val Ile Leu Gly Val Leu  
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<211> 9

<212> PRT

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<400> 247

Met Ser Leu Gln Arg Gln Phe Leu Arg  
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<210> 248

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<400> 248

Leu Leu Gly Pro Gly Arg Pro Tyr Arg  
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<210> 249

<211> 9

<212> PRT

<213> Homo sapiens

<220>

<223> TUMOR EPITOPE

&lt;400&gt; 249

Glu Glu Lys Leu Ile Val Val Leu Phe  
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&lt;210&gt; 250

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; TUMOR EPITOPE

&lt;400&gt; 250

Ala Cys Asp Pro His Ser Gly His Phe Val  
1 5 10

&lt;210&gt; 251

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; TUMOR EPITOPE

&lt;400&gt; 251

Ser Tyr Leu Asp Ser Gly Ile His Phe  
1 5

&lt;210&gt; 252

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; TUMOR EPITOPE

&lt;400&gt; 252

Phe Pro Ser Asp Ser Trp Cys Tyr Phe  
1 5

&lt;210&gt; 253

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; TUMOR EPITOPE

&lt;400&gt; 253

Glu Ala Asp Pro Thr Gly His Ser Tyr  
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<213> Homo sapiens

<220>

<223> TUMORE EPITOPE

<400> 254

Ser Ala Tyr Gly Glu Pro Arg Lys Leu

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<210> 255

<211> 9

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Glu Val Asp Pro Ile Gly His Leu Tyr

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<210> 256

<211> 9

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1

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Met Glu Val Asp Pro Ile Gly His Leu Tyr

1

5

10

<210> 258

<211> 9

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&lt;400&gt; 258

Ala Ala Arg Ala Val Phe Leu Ala Leu

1

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&lt;210&gt; 259

&lt;211&gt; 8

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; TUMOR EPITOPE

&lt;400&gt; 259

Tyr Arg Pro Arg Pro Arg Arg Tyr

1

5

&lt;210&gt; 260

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; TUMOR EPITOPE

&lt;400&gt; 260

Ser Pro Ser Ser Asn Arg Ile Arg Asn Thr

1

5

10

&lt;210&gt; 261

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; TUMOR EPITOPE

&lt;400&gt; 261

Val Leu Pro Asp Val Phe Ile Arg Cys

1

5

&lt;210&gt; 262

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 PEPTIDE

&lt;400&gt; 262

Ser Leu Tyr Asn Thr Val Ala Thr Leu

1

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<210> 263  
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<400> 263  
Ile Leu Lys Glu Pro Val His Gly Val  
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Val Ile Tyr Gln Tyr Met Asp Asp Leu  
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Pro Asp Ile Val Ile Tyr Gln Tyr  
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<400> 270  
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<220>  
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&lt;400&gt; 271

Val Pro Leu Arg Pro Met Thr Tyr

1 5

&lt;210&gt; 272

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus type 1

&lt;220&gt;

&lt;223&gt; HIV-1 PEPTIDE

&lt;400&gt; 272

Gln Val Pro Leu Arg Pro Met Thr Tyr Lys

1 5 10

&lt;210&gt; 273

&lt;211&gt; 28

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; LIPID

&lt;222&gt; (1)

<223> PALMITOYL-LYSYL CHAIN ON N-TERMINAL RESIDUE; HIV-1  
LIPOPEPTIDE

&lt;400&gt; 273

Gly Arg Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu

1 5 10 15

Arg Gly Arg Ser Leu Tyr Asn Thr Val Ala Thr Leu

20 25

&lt;210&gt; 274

&lt;211&gt; 28

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; LIPID

&lt;222&gt; (1)

<223> PALMITOYL-LYSYL CHAIN ON N-TERMINAL RESIDUE; HIV-1  
LIPOPEPTIDE

&lt;400&gt; 274

Gly Arg Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu

1 5 10 15

Arg Gly Arg Ile Leu Lys Glu Pro Val His Gly Val

20 25

<210> 275  
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<220>  
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 <223> PALMITOYL-LYSYL CHAIN ON N-TERMINAL RESIDUE; HIV-1  
 LIPOPEPTIDE

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 Gly Arg Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu  
           1                  5                  10                  15  
 Arg Gly Arg Asn Pro Asp Ile Val Ile Tyr Gln Tyr Met Asp Asp Leu  
                   20                  25                  30

<210> 276  
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 <212> PRT  
 <213> Homo sapiens

<220>  
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 <223> PALMITOYL-LYSYL CHAIN ON N-TERMINAL RESIDUE; HIV-1  
 LIPOPEPTIDE

<400> 276  
 Gly Arg Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu  
           1                  5                  10                  15  
 Arg Gly Arg Phe Pro Val Thr Pro Gln Val Pro Leu Arg Pro Met Thr  
                   20                  25                  30

Tyr Lys